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BEFORE THE
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PETITION OF ARKANSAS ELECTRIC COOPERATIVE CORPORATION
FOR A DECLARATORY ORDER

ARKANSAS ELECTRIC COOPERATIVE CORPORATION'S
REPLY EVIDENCE AND ARGUMENT

PUBLIC VERSION

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CONTENTS

Arkansas Electric Cooperative Corporation's Reply Argument

Reply Verified Statement of Michael A. Nelson

Reply Verified Statement of Douglas G. De Berg

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**ARKANSAS ELECTRIC COOPERATIVE CORPORATION'S
REPLY ARGUMENT**

AECC's 1/ reply evidence and argument in response to the opening evidence and argument of BNSF and UP show that BNSF has not made even a prima facie case in support of its request that the Board issue a declaratory order approving BNSF's coal dust tariff.

I. SUMMARY OF ARGUMENT

BNSF claims that the law of trespass requires that shippers be required to prevent the deposition of coal dust on the tracks. To the contrary, shippers are not trespassers, they enter BNSF tracks with its permission, and BNSF has no legal basis for complaint.

BNSF cites several old ICC decisions that it claims uphold its authority to enact the coal dust tariff. However, the law is clear that a railroad rule will be upheld only if it is reasonable, and reasonableness is to be decided on the specific facts of each case.

1/ This Reply Argument uses the same short-hand references as AECC's Opening Evidence. Arkansas Electric Cooperative Corporation is referred to as AECC. BNSF Railway is referred to as BNSF. Union Pacific Railroad is referred to as UP. The Powder River Basin is referred to as the PRB.

BNSF has asked the Board to grant a declaratory order approving its coal dust tariff in the interest of safe and efficient rail operations and of reliability of service. However, BNSF has failed to produce any evidence to support its claim that the tariff serves these purposes. Because BNSF has not made a prima facie case in support of the declaratory order it seeks, its request should be denied.

Even if BNSF had made out a prima facie case in support of the coal dust tariff, the tariff must be stricken because BNSF has been unable to come up with a practical way to apply its coal dust standards.

BNSF exaggerates the maintenance problems that coal dust causes. Many of the problems BNSF complains about are caused, not by coal dust, but by the very high volume of heavy-haul traffic on the rail lines involved.

The coal dust tariff represents an unlawful threat to all coal shippers on the lines.

These issues are discussed in this Reply Argument, and further support is presented in the attached Reply Verified Statements of Michael A. Nelson and Douglas G. De Berg.

II. ARGUMENT

A. BNSF Is Wrong That Coal Shippers Should Be Made Responsible For Coal Dust Because They "Own The Coal".

AECC and other coal shippers maintain that fugitive coal dust is a track maintenance issue, which BNSF is responsible for dealing with. See Arkansas Electric Cooperative Corporation's Opening Argument (AECC Opening Argument), at 3-6. BNSF, on the other hand, argues that "The coal is the shippers' freight and therefore it is their responsibility

to keep the coal in the loaded rail cars.” BNSF Railway Company’s Opening Evidence and Argument (BNSF Opening Argument), at p. 5. See also, Verified Statement of Stevan B. Bobb (Bobb VS) at 2; Verified Statement of William VanHook (VanHook VS) at 17.

BNSF even goes so far as to claim that fugitive coal dust constitutes trespass on railroad property by the coal shippers:

It would clearly be a trespass if a party, without permission, entered BNSF’s right of way and dumped coal on its tracks. * * * * The heavy emissions of coal dust that BNSF has experienced are the effective equivalent of having coal dumped on BNSF’s right of way without its permission.

BNSF Opening Argument, at p. 19 n. 1. The very authority on which BNSF relies, the Restatement (Second) of Torts, refutes this argument.

The Restatement clearly states that “Conduct which would otherwise constitute a trespass is not a trespass if it is privileged. Such a privilege may be derived from the consent of the possessor” Comment (e) to Restatement (Second) of Torts § 158(a). Here, BNSF has not only “consented” to the presence of coal cars on the Joint Line, transporting those coal cars over the Joint Line is BNSF’s business, from which it derives substantial revenues.

BNSF’s consent to the presence of coal cars on the Joint Line carries with it consent to the presence of fugitive coal dust.

[A] consent to enter a particular part of the land in a particular manner or at a particular point or for a particular purpose carries with it consent to such harm to the land and to the possessor’s interest in the persons and things on the land as is incidental to a careful exercise of the license.

Comment (b) to Restatement (Second) of Torts, § 167. Furthermore:

One who effectively consents to conduct of another intended to invade his interests cannot recover in an action of tort for the conduct or for harm resulting from it.

Restatement (Second) of Torts § 892A

Thus, the shippers' "ownership" of the coal that BNSF (and UP) carry over the Joint Line does not remove from BNSF its responsibility to maintain the line, including dealing with the maintenance challenges that fugitive coal dust presents.

B. BNSF's Coal Dust Tariff Is Unprecedented.

AECC and other coal shippers have presented evidence that BNSF's coal dust tariff is unreasonable and therefore invalid under 49 U.S.C. § 10702 (a). AECC Opening Argument, at 3-6, 15-21. But BNSF claims that "[l]ong-standing case law supports the authority of BNSF to adopt the very sort of operating rule that is at issue in this proceeding." BNSF Opening Argument, at p. 18. "Long-standing", in this instance, means two decisions by the Interstate Commerce Commission from the nineteen-teens, and one from the nineteen-thirties, neither of which supports BNSF's authority to adopt its coal dust tariff.

The earliest case, In Re Suspension Of Western Classification No. 51, 25 I.C.C. 442, 486 (1912) shows how deep BNSF has had to dig to find "support" for its position. A single paragraph (out of a 167-page Commission decision) approved, as being "in the public as well as the private interest", a tariff provision that "pails, firkins, kits, and tubs" be made of wood, iron, or steel. 25 I.C.C. at 485. PRB coal is not transported in pails, firkins, kits, or tubs.

Three years later, In re Western Trunk Line Rules, Regulations, and Exceptions to Classifications, 34 I.C.C. 554 (1915), the Commission discussed (on p. 578) a proposed rule dealing with bulk transportation of agricultural products (flaxseed and millet seed), which required shippers to pay for lining cars to prevent leakage of the lading. "No objections were entered", and the Commission approved the proposed rule.

The only case among those that BNSF cites that contains any substantive discussion at all is Chicago Bd. of Trade v. Abilene & S. Ry. Co., 220 I.C.C. 753 (1937). That case involved a rule adopted by several western railroads to require that bulk shippers of grain install or pay for the installation of “grain doors” on cars used for shipping bulk grain. Grain doors are temporary wooden doors that are nailed over the end and side doorways of the cars, about ten of them for a standard box car, “to prevent sifting of the grain from the car while in transit.” 220 I.C.C. at 755-56. The railroads furnished the doors, but required the shippers either to install them or pay the railroad \$1.00 per car to do so. The shippers did not dispute the need for grain doors; the doors were necessary to make a standard box car suitable for bulk shipment of grain. The only issue was whether the shipper or the railroad should pay to install them. This is entirely different from the transportation of PRB coal. The railroad prescribes suitable car types to be used to transport coal, which are typically provided by the shipper. ^{2/} BNSF expressly justifies its coal dust tariff as a means to reduce its own maintenance costs; it is not something shippers need or want.

The Commission observed that a factor supporting the tariff in Chicago Bd. of Trade was the fact that “ever since grain has been shipped in bulk the shippers have been required to place the grain doors.” 220 I.C.C. at 757 (citing Farmers’ Cooperative Assns. v.

^{2/} BNSF Tariff 6041-B, Item 50 prescribes “An open-top gondola or bottom dump hopper or bottom dump rapid discharge railcar with a designation by The Official Railway Equipment Register of GT or HT.” “[A] typical PRB coal shipper . . . is required by BNSF to supply unit trains of open top, gondola railcars to BNSF as a prerequisite for receiving coal transportation service. Open top gondola railcars enable mines, railroads, and utilities to maximize the efficiency of the overall logistics chain, which in part maximizes the revenues of the hauling railroad by enabling it to deliver large volumes of coal in cycled, unit train service.” Opening Statement of TUCO, Inc., at 3.

Chicago, B. & Q. R. Co., 34 I.C.C. 60). In contrast, ever since coal has been shipped in bulk, it has been shipped in open-top cars, a factor that supports opposition to the coal dust tariff. See, e.g., Opening Evidence of Ameren Fuels and Service Co. (Ameren Opening), at 2.

The complaining grain shippers in Chicago Bd. of Trade wanted the Commission to require the railroads to pay for installing the grain doors, on the theory that the railroads were obliged to furnish suitable cars, and cars weren't suitable for bulk grain unless the grain doors were installed. The Commission disagreed, because it saw the installation of the doors as "an incident of loading bulk grain", and the shipper, not the railroad, is responsible for loading the car. 220 I.C.C. at 761. Preventing fugitive coal dust from blowing off the tops of coal cars in transit is not "an incident of loading" the coal, but an incident of transporting it, for which the railroad, not the shipper, should be responsible.

These ancient cases do not support BNSF's claim that "[l]ong-standing case law supports" BNSF's power "to adopt the very sort of operating rule that is at issue in this proceeding", nor the "broad authority" of railroads to dictate rules for "packing and loading freight in railcars". BNSF Opening Argument, at p. 18.

Looking for prior decisions to determine whether the coal dust tariff is valid or not is a fool's errand, because the statute is clear that railroads may adopt "reasonable" rules, and this Board is here to determine whether a challenged rule is reasonable or not. The reasonableness of any rule must depend on the specifics of each rule and the objectives it is intended to advance. Another great railroad puts in well in its filing in this case:

Railroads' statutory right to establish reasonable rules and practices is subject, of course, to the Board's power to adjudicate the reasonableness of such rules and practices upon complaint. 49 U.S.C. § 10704(a)(1). Congress did not set a standard for determining what constitutes an

"unreasonable" practice, and instead left that question to the Board's discretion. See id; Granite State Concrete Co. v. Surface Transp. Bd, 417 F.3d 85, 92 (1st Cir. 2005) ("[S]ection 10702 does not define what would be reasonable rules and practices."). The Board has recognized that the best way to exercise its discretion is to consider unreasonable practice complaints on a case-by-case basis that accounts for the specific facts at issue.

Opening Comments Of Norfolk Southern Railway Company, at 2.

BNSF ought to know that. Rather than claim that old cases establish that a railroad has some inherent power to "adopt the very sort of operating rule" that is at issue here, BNSF should have consulted its own recent experience before the Board in North America Freight Car Ass'n v. BNSF Ry. Co., STB FD 42060 (Sub-No. 1), (served Jan. 26, 2007). There, BNSF submitted extensive evidence that persuaded the Board that the challenged rule was reasonable.

As the discussion in the next section shows, this is precisely what BNSF has not done in this case.

C. BNSF Has Failed To Produce Any Substantial Evidence On Crucial Issues.

Railroads are not required to seek Board approval of proposed rules before putting them into effect, but where a proposed rule would make a dramatic change in the status quo for a particular class of traffic or group of customers, a railroad may take the initiative to bring the matter before the Board. For example, last year, when UP decided that it wanted to make it a policy to minimize transport of certain hazardous chemicals long distances through heavily-populated areas, it first filed a petition with the Board for a declaratory order that doing this would not violate its common carrier obligations. Union Pacific RR – Petition for Declaratory Order, STB Fin. Dkt. 35219, served June 11, 2009.

BNSF did not choose to apply to the Board before adopting its coal dust tariff, but when AECC filed a petition for a declaratory order challenging the tariff, BNSF agreed that the Board should institute a declaratory order proceeding with respect to its coal dust tariff and suspended the tariff pending the outcome of the proceedings. BNSF asked the Board to grant affirmative relief approving the tariff. Specifically, BNSF asked the Board to issue:

(1) a declaration that BNSF is entitled to establish rules governing the operation of coal trains over its lines that are designed to inhibit the dispersion of coal dust in the interest of safe and efficient rail operations and of reliability of service; and (2) a declaration that the specific coal dust emissions standards set forth in items 100 and 101 of BNSF's Coal Rules publication denominated as Price List 6041-B ("Rule Publication 6041-B") are not unreasonable.

BNSF Railway Company's Reply To Arkansas Electric Cooperative Corporation's Petition For A Declaratory Order (BNSF Reply Petition) at 2.

Thus, BNSF's justification for the coal dust tariff rests on its allegation that the tariff is necessary to assure the safe rail operations, and on its allegation that the tariff will promote efficiency.

With respect to safety, BNSF pointed to two derailments on the Joint Line in May 2005, which it claimed were caused by fugitive coal dust. Id. at 4. Yet BNSF presented no substantial evidence in its Opening that coal dust caused the 2005 derailments.

With respect to efficiency, BNSF has failed to present any substantial evidence that "curtailing coal dust emissions" is an efficient way of dealing with the problem it identifies.

These two failures of proof are discussed below.

1. **BNSF Has Presented No Evidence That Coal Dust Caused The 2005 Derailments.**

AECC's opening evidence included detailed analyses showing that the 2005 derailments were caused by BNSF's inadequate track maintenance, and possibly by elements of substandard construction, not by fugitive coal dust. Based on more than 40 years' experience in railroad track construction and maintenance, and a personal inspection of the derailment sites, AECC witness Douglas W. De Berg summarized his conclusions as follows in the verified statement filed with AECC's opening evidence and argument:

I understand that BNSF has attributed the cause of these derailments to fugitive coal dust degrading the ballast at these locations, but I conclude that the derailments resulted from a lack of adequate maintenance, perhaps elements of substandard construction, such as the turnout at MP 63.16 (since removed, but shown on photographs) constructed without proper drainage, and the failure of BNSF to protect train operations with temporary speed restrictions or removal of track from service until needed repairs could properly be made.

Verified Statement of Douglas W. De Berg (De Berg VS), at 8. See his detailed discussion at Id., 8-12.

AECC witness Michael A. Nelson, based on careful analysis of information obtained in discovery and from other sources and on his 30 years experience as a rail transportation systems analyst, concluded that "[f]rom an engineering perspective, BNSF's description of the mechanism through which it seeks to fault coal dust for the Joint Line derailments is basically incomprehensible." Verified Statement of Michael A. Nelson (Nelson VS), at 11 in AECC's opening evidence and argument. Mr. Nelson examined evidence of poor track maintenance and inspection practices, as well as construction deficiencies, on the Joint Line. Id. at 10-17. He also found that the two locations where the derailments occurred share

characteristics that make them particularly vulnerable to the consequences of inadequate maintenance. In contrast, fugitive coal dust is present throughout the Joint Line, so dust cannot explain why derailments occurred in these two particular locations, but not elsewhere. Id. at 17-20. He concluded from his analysis that:

It is highly improbable that two derailments would have occurred by chance at these two locations – which share several characteristics that are not common elsewhere on the Joint Line -- if they were caused by fugitive coal dust, which is found throughout the Joint Line.

Id. at 20. How improbable? Using probabilistic modeling Mr. Nelson computed the probability at 0.001936 (in laymen's terms, pretty darned unlikely). Id. at 20-21.

Other parties also analyzed the facts of the derailments, and came to the same conclusion: The derailments were the result of inadequate maintenance. See Opening Evidence And Argument Of Western Coal Traffic League And Concerned Captive Coal Shippers (WCTL Opening), at 14-17, citing Verified Statement of Richard H. McDonald, and Appendix B (The Real Causes Of The Derailments) (examining BNSF, UP, and FRA post-derailment analyses).

But BNSF presented no evidence that coal dust caused or contributed to the derailments. It offers nothing but generalities and conclusory statements:

Mr. Fox, who was Vice President, Engineering, at the time of the derailments (now VP, Transportation), refers to the conclusions of a BNSF investigation of "the causes of the May 2005 derailments", but seems to have no specific knowledge of the details of the investigation or how it was performed, and he provides no information about how the

conclusions were reached. 3/ Verified Statement of Gregory C. Fox (Fox VS), at 5. For further discussion of Mr. Fox's assertions see Reply Verified Statement of Michael A. Nelson (Nelson Reply VS) at 16-20.

Mr. Bobb, who held a position in agricultural marketing at BNSF at the time of the derailments (he's now Group Vice President, Coal Marketing), "learned indirectly that . . . the accumulation of coal dust in the ballast underlying the track structure had been a significant contributing cause of the derailments." Verified Statement of Stevan B. Bobb (Bobb VS), at 4.

Mr. VanHook was Assistant Vice-President and Chief Engineer-Systems Maintenance and Planning at the time of the derailments (a position he still holds), and refers to what is presumably the same investigation that Mr. Fox mentioned, but provides no more information about it. 4/ Verified Statement of William VanHook (VanHook VS), at 3-4.

Professor Tutumluer was an Associate Professor at the University of Illinois, Urbana-Champaign at the time of the derailments (he is now a full professor). So far as can be determined from his written testimony, he has no personal knowledge about the derailments,

3/ " . . BNSF investigated the causes of the May 2005 derailments. We concluded that the derailments were attributable to a confluence of events. First, an extraordinary amount of rain and snow had fallen over a short period of time in late April and early May. Drying cycles were not long enough to allow moisture to drain from the roadbed. Second, temperatures were warm enough by mid-May that the frozen ground was thawing and additional sub-surface moisture was rising up through the roadbed. Third, the coal dust accumulations in the rail ballast had exacerbated the drainage problems caused by the excessive moisture in the roadbed. The mixture of coal dust and water caused the ballast to weaken to the point that the roadbed no longer provided adequate support for the rails."

4/ "BNSF . . . concluded that the derailments resulted from a combination of unusual weather conditions – an extraordinary amount of rain and snow had fallen during the spring thaw – and high levels of coal dust in the ballast which had weakened the track structure due to lack of proper ballast support."

but he does not hesitate to state a conclusion about their cause. 5/ Verified Statement of Erol Tutumluer (Tutumluer VS), at 2. See the discussion in Nelson Reply VS at 16.

Mr. Emmitt of Simpson Weather Associates says that his company was hired by BNSF “shortly after” the derailments, and he “understands” that “BNSF subsequently concluded that the presence of coal dust in the ballast contributed to those derailments.” Verified Statement of G. David Emmitt (Emmitt VS), at 4.

None of the other BNSF witnesses offers any information about the causes of the derailments, and none appears to be in a position to do so. 6/

Thus, BNSF has made no effort to present to the Board any evidence or analysis to establish that coal dust caused the 2005 derailments (or was even a contributing factor in them). The Board should disregard BNSF’s repeated claims (e.g., BNSF Opening Argument, at 10, 16, 17, 19, 21) that its coal dust tariff is necessary to ensure “safety” and prevent derailments. See also the discussion in WCTL Opening at 14-18.

Recognizing that coal dust did not cause the 2005 derailments has two important implications for the decision in this case.

5/ “... In 2005 when two derailments occurred on the BNSF/UP Joint Line – there was heavy precipitation after a relatively low level of precipitation for an extended period of time in the region, and in both places where the derailments happened, the ballast was heavily fouled by coal dust. The coal dust caused moisture to accumulate and caused the loss of strength of the track, resulting in the derailments, which threatened to interrupt the supply of coal to power plants.”

6/ Mr. Sloggett was working in BNSF’s Southwest Division at the time of the derailments. Verified Statement of Craig Sloggett (Sloggett VS), at 2. Mr. Sultana was not employed by BNSF (as a “Six Sigma Specialist” in the Mechanical Department) until the year after the derailments (he doesn’t provide any prior employment or education information). Verified Statement of Charles Sultana (Sultana VS), at 1.

First, it means that coal dust should be treated as a maintenance issue and not as a safety issue. The Board should recognize BNSF's coal dust bogeyman for just what it is: An attempt to distract attention from its own responsibility for the derailments due to poor maintenance practices and deficient construction, and an excuse to shift to its shippers part of the cost of maintaining the Joint Line. The evidence is overwhelming that BNSF's poor maintenance and construction practices caused the derailments. Since 2005, the spotlight of public attention, and pressure from UP, have kept BNSF focused on maintaining the Joint Line properly, and there have been no recurrences of the events of 2005. However, it is vitally important that BNSF not get the idea that it can now slack off on its maintenance responsibilities. If the Board were to approve the coal dust tariff, that would give credibility to BNSF's claim that dust, not poor maintenance, caused the derailments, and could encourage BNSF to return to its bad old ways.

Second, it means that the BNSF's justification for its coal dust tariff rests entirely on its contention that the tariff is necessary to achieve "efficient rail operations and of reliability of service". It is to that issue that we next turn.

2. BNSF Has Presented No Evidence That Its Coal Dust Tariff Would Be Cost-Effective.

Because BNSF has failed to present any evidence that coal dust presents a safety issue, BNSF is left with its second rationale for imposing its coal dust tariff: That reducing fugitive coal dust would be "efficient". BNSF Reply Petition at 2. Reducing coal dust (assuming that it were feasible to do so) would be "efficient" only if doing so would reduce the cost of maintaining the Joint Line and Black Hills Subdivision by more than the cost of the dust

reduction. See Nelson Reply VS at 9-10. BNSF, however, makes no effort to compare the costs that its tariff would impose with the costs that it would save.

In AECC's opening, we showed (based largely on BNSF's own data) that it would cost more (a lot more) to comply with the coal dust tariff than any possible savings in maintenance costs that would result from the dust reduction BNSF seeks to achieve. See AECC Opening Argument, at 17-19, and Nelson VS, at 26-28. See also WCTL Opening Argument, at 34-37 and evidence cited therein.

In contrast, BNSF has provided no quantitative evidence at all regarding the costs of complying with its tariff vs. the costs of continuing to deal with coal dust as a maintenance issue. BNSF's claims that it would be "better" to reduce coal dust are all conclusory and entirely lacking in any quantitative or comparative analysis. Thus,

- BNSF asserts that "expanded maintenance is not an acceptable solution to a problem that has the potential for disrupting the PRB coal supply chain." BNSF Opening Argument, at 5.

This argument is obviously based on the assumption that coal dust was responsible for the 2005 derailments that "disrupted the PRB coal supply chain" for an extended period, but as discussed above, the evidence shows that poor maintenance and construction, not coal dust, caused the derailments. Inadequate maintenance practices and poor construction will always have the potential to disrupt railroad operations, and that is why they should not be tolerated or excused.

- BNSF also asserts that "the impact of expanded maintenance on limited PRB rail capacity mean[s] that the only responsible solution to this problem is to take measures to keep the coal in the loaded cars." BNSF Opening Argument, at 5-6. See, also, Fox VS, at 8-9; VanHook VS, at 15.

No evidence supports BNSF's assertion. It is a fact of life in railroading that maintenance sometimes requires that a track be taken out of service for a time while maintenance is performed, and that slow orders may have to be imposed on track segments until deficient conditions can be corrected. See De Berg VS, at 2-8, 11-12. This was surely taken into account (it certainly should have been taken into account) in designing the Joint Line, which is currently triple-tracked and in places quadruple-tracked. See Bobb VS at 3. BNSF presents no evidence or analysis of the extent to which the presence of coal dust increases the time that track is out of service for maintenance, nor any evidence or analysis that this reduces the capacity of the Joint Line, nor any evidence or analysis that the costs that this imposes are greater than the cost of reducing fugitive coal dust.

Nor does BNSF provide any evidence of the cost that its tariff would impose on coal shippers. BNSF clearly has no interest in that issue. The only witnesses who discuss dust-reduction methods are Mr. VanHook and Mr. Emmitt of Simpson Weather Associates, but Mr. VanHook simply summarizes the Simpson Weather tests. 7/ Mr. Emmitt describes tests of the effectiveness of "chemical binders" to reduce coal dust, but apparently BNSF did not ask him to give any consideration to the cost that use of such binders would impose on coal shippers, and he did not do so. Emmitt VS at 12-14.

7/ Interestingly, Mr. VanHook acknowledges that preventing fugitive coal dust by covering coal cars would not be a good idea because "significant costs might be involved". VanHook VS at 18. In contrast, he gives no consideration to the costs that the coal dust tariff would impose on coal shippers. Perhaps that is because some of the "significant costs" caused by the use of covers would fall on the railroad (by reducing efficiency – see TUCO Opening at 3), whereas all the costs of the coal dust tariff would fall on shippers.

The plain fact is that BNSF does not care whether its tariff is “efficient”. The goal of the tariff is to shift a portion of BNSF’s maintenance expenses to its customers. If it costs the customers much more to comply with the tariff than BNSF saves in maintenance expenses, BNSF could care less.

But the Board cares. The Board’s role is to evaluate the reasonableness of rules that railroads seek to impose. In the case of the rule at issue in this case, the Board cannot determine whether the rule is reasonable without knowing its economic effect. BNSF has not even tried to provide evidence from which the Board could make that determination.

* * *

BNSF has asked the Board to approve its tariff in the interests of “safe and efficient rail operations and reliability of service”. BNSF has provided no evidence that fugitive coal dust threatens the safety of rail operations. BNSF has presented no evidence that its coal dust tariff would be more efficient than continuing to maintain the rail lines in question. Accordingly, the Board should deny BNSF’s request that the Board approve its coal dust tariff.

D. BNSF’s Coal Dust Tariff Is Impractical.

As shown in Section II.C of this Reply, BNSF has failed to prove that its coal dust tariff would promote “safe and efficient rail operations and reliability of service” – which is its stated justification for the tariff. Therefore, it isn’t really necessary to discuss how BNSF proposes to enforce the tariff. Nevertheless, in the interests of completeness, we will show why the coal dust tariff cannot achieve its stated objective of reducing ballast fouling by coal dust.

1. BNSF's Monitoring System Is Unreliable.

BNSF's stated objective was to establish a "coal dust emission standard" that would "identify, on a train specific basis, trains emitting exceptional levels of coal dust."

Sultana VS at 6. BNSF concluded that if all trains showed an IDV.2 ("integrated dust value") of 134 or less as measured at the Joint Line Track Side Monitor (TSM), this would represent a 95% reduction in fugitive coal dust. This was the objective that BNSF initially sought to achieve.

Sultana VS at 8-9. VanHook VS at 19-20. However, BNSF has been unable to find a reliable way to measure whether a particular train does or does not meet the standard.

As discussed in greater detail in Nelson Reply VS at 12-13, Mr. Sultana, BNSF's "Six Sigma" expert, conducted extensive analyses of the TSM data, but was unable to obtain reliable results. Two identical TSM instruments placed side by side measuring what is presumably the same dust situation give wildly differing readings. Sultana VS at 10. 8/ Rather than scrap the methodology as hopelessly inadequate, or find some instruments that give reliable results, BNSF has tried to deal with this inaccuracy in the measurement instruments, by raising its IDV.2 standard for the Joint Line from 134 to 300. Id. BNSF's theory seems to be that there's a limit to how far off the instrument readings are likely to be, and if the TSM reading for a train is no higher than 300, that probably means that the correct reading would be 134 or lower.

BNSF proudly proclaims this is a "highly conservative standard". Sultana VS at 10. VanHook VS at 20. It would be more accurate to call it a meaningless standard. It's like

8/ See also Opening Statement Of National Coal Transportation Association (NCTA Opening), at 11.

driving a car with a defective speedometer. You know that it isn't accurate, but if you figure it's never wrong by more than 25 mph, then when it reads under 40 mph, you're probably not violating the 65 mph speed limit. Or you could get your speedometer fixed.

What kind of "science" is this? Normal practice would be to calibrate your instruments against some standard, so you know what the instrument readings mean. Instead, Mr. Sultana compared results from two identical uncalibrated and unproven devices and assumed that somehow conclusions could be drawn from the widely divergent results. So far as we can tell from BNSF's submission, an IDV.2 of 134 or 300 or any other number doesn't mean anything other than that's the reading that a particular instrument showed. If you were serious about getting reliable results regarding fugitive coal dust from trains, you would abandon these devices and this methodology and find another more accurate way of measuring the dust. 9/

Much of BNSF's rhetoric could leave the impression that every coal train on the Joint Line or Black Hills Subdivision is spewing out great clouds of coal dust all over the track. Mr. Sloggett's description may be the most dramatic ("I saw ahead of me on the track the headlight of the lead locomotive on a loaded coal train encircled in a cloud of black dust.").

9/ Mr. Sultana's approach seems to result-oriented; he's looking for data to prove (or that he can claim proves) what his superiors want proved. When he looked for outside verification of his methodology, the first consultant he turned to, Six Sigma Qualtec, was critical of aspects of his study, so he turned to a second firm, Smarter Solutions, that gave him the answers he wanted. The Smarter Solutions report is an exhibit to the Sultana statement, but not the Qualtec report. Sultana VS at 11-12.

Sloggett VS at 2. But in fact, BNSF asserts that only 14% of the trains passing the TSM site violate its coal dust standard. VanHook VS at 20. 10/

Think about that. This whole coal dust problem about which BNSF is complaining involves only 14% of the trains on the Joint Line; the rest are in compliance right now (and most of them haven't been sprayed with anything). Yet BNSF wants to force 100% of shippers to treat 100% of their trains, in order to obtain an 85% reduction in coal dust from 14% of the trains.

If reducing fugitive coal dust really did make economic sense, 11/ a reasonable approach would be to identify the 14% of trains that produce an excessive amount of coal dust, before they leave the mine, and take corrective action. If BNSF were paying the cost of remediation, this is the approach BNSF would favor. But the reality is that after four years of trying to get the bugs out of its methodology, BNSF does not know, and has no reliable way to tell in advance, which are the trains that are likely to fail its standard. BNSF's own expert, Mr. Sultana, has drawn a complete blank in assessing the factors that cause failures of the performance standard. As a result, and especially in light of the draconian penalties with which BNSF has already threatened shippers, if the Board approves BNSF's tariff, the only real option shippers will have is to undertake expensive protective measures on all of their movements.

10/ Mr. VanHook claims that this doesn't mean that only 14% of trains are emitting large amounts of coal dust, only that they aren't doing so at the monitoring point. VanHook VS at 20. However, BNSF has chosen to measure coal dust "emissions" at only one place on the Joint Line. In the absence of any evidence of conditions elsewhere, the 14% figure is all BNSF (or we) can use.

11/ BNSF has not proved that it does make economic sense, as discussed in Section II.C, and AECC's evidence shows that it doesn't, as discussed in AECC Opening Argument at 17-19.

BNSF's own evidence shows that 86% of what is spent on dust suppression will be wasted, because 86% of trains would pass the standard anyway.

2. BNSF's Monitoring System Doesn't Measure Dust That Might Fall On The Track.

BNSF claims that coal dust is a problem because when it falls on the track, it can foul the ballast and lead to soft or unstable track. Coal dust that remains in the car, or coal dust that falls to the ground away from the track, doesn't contribute to the problem. If BNSF's monitoring system is supposed to help reduce the coal dust problem, it would have to measure the amount of fugitive coal dust that is likely to fall on the tracks. In fact, the dust that the e-samplers measure at the TSMs is the dust that is least likely to foul the ballast or injure the track.

AECC witness Michael A. Nelson, in his reply verified statement (based on information provided by UP witness Muleski), shows that the TSM instruments generally measure the small particles of fugitive coal dust that become airborne off the tops of railcars and are carried by the wind away from the track. Larger particles of coal dust that exit the car are most likely to fall directly onto the ballast in the vicinity of the railcar, and never enter the dust cloud above the railcar observed by the TSM. Yet it is these larger particles falling onto the track that might cause the problems that BNSF claims to be concerned about, while most of the suspended cloud of small particles observed by the TSM will tend to drift and settle elsewhere.

As Mr. Nelson puts it:

Basically, the TSM measures clouds, not the deposition of contaminants on the rail ballast.

Nelson Reply VS at 11 n. 27. See, also WCTL Opening at 24-33. Ameren Opening at 7-8 (Ameren suggests that four of its trains may have “failed” the IDV.2 test because of problems caused by BNSF’s locomotive).

TSM readings are not likely to reflect to a significant degree the larger particles of coal dust that are most likely to foul the ballast and create the problems that BNSF complains about. There is no reason to think that high TSM readings reflect increased ballast fouling, or that lower TSM readings mean reduced ballast fouling.

3. BNSF Placed Its TSM At A Location Where Significant Coal Dust Accumulation Could Be Expected.

BNSF chose to create only one site on the Joint Line, and one site on the Black Hills Subdivision, to locate its TSM stations to monitor the coal dust supposedly released from individual trains. BNSF calls this a “traffic cop” approach to the monitoring of fugitive coal dust. BNSF Opening at 24.

If each TMS site were typical of the entire line, perhaps this would make sense, but the sites are not typical. BNSF specifically chose the location of the Joint Line monitoring site at MP 90.7 because that was a location “where significant dust had accumulated in the past”. VanHook VS at 7. The reason that coal dust had accumulated there is that the monitoring site is located at a “big sag”, and in such a location operation of the locomotives may result in “slack action” in the train, which can cause coal dust to be released. See Nelson Reply VS at 13, and 7. As a result, at the very site where BNSF located its monitoring site, the way that BNSF operates its trains may cause the deposition of coal dust, for which BNSF will then blame the shipper of the coal.

The monitoring station is not a “traffic cop”, it’s like a “speed traps” set up at the bottom of a hill, where the cop knows the cars will be going faster than normal. That’s a good way to generate revenue from traffic tickets, but not a proper procedure for BNSF to ask this Board to bless. 12/

E. BNSF Exaggerates The Maintenance Challenge Presented By Coal Dust.

As discussed in Section II.C, BNSF has provided no evidence about what additional maintenance costs are incurred on the Joint Line or the Black Hills Subdivision as a result of fugitive coal dust, and for that reason (and others) it has failed to support its request for Board approval of the coal dust tariff. BNSF has, however, provided plenty of complaints about the problems it suffers from coal dust. These complaints are misleading and exaggerated.

1. Coal Dust Is Not The Worst Contaminant Of Ballast.

Part of the rationale for BNSF’s coal dust tariff is its assertion that coal dust is such a pernicious ballast-fouling agent that it creates worse maintenance problems than any other substance. BNSF witness Erol Tutumluer, a professor of civil and environmental engineering, describes “my specific research regarding coal dust and its impact upon ballast”, from which he concludes that “coal dust is one of the worst fouling agents when compared to mineral filler produced from aggregate breakdown and the fine-grained cohesive subgrade soils.” Verified Statement of Erol Tutumluer, at p. 5.

12/ In addition, there are several other features of the location where BNSF has sited its Joint Line TMS that could distort coal dust measurements taken there, as discussed in Nelson Reply VS at 13.

This conclusion reflects a classic apples and oranges comparison – or perhaps more aptly, a lead and feathers comparison (as in the children’s riddle about “what’s heavier, a pound of lead or a pound of feathers?”). Prof. Tutumluer compared the detrimental effect on ballast of equal weights of coal dust, plastic clayey soil, and mineral filler, and found that “coal dust was by far the worst fouling agent for its impact on track substructure and roadbed.”

Tutumluer Reply VS at 11.

This comparison is flawed because the effect of any fouling agent on ballast is not a function of its weight, but of its volume, that is, the extent to which it fills up the voids within the ballast, as Prof. Tutumluer himself acknowledged at p. 6 of his statement. Apparently he forgot that fact when he designed his study.

AECC witness Nelson used Prof. Tutumluer’s own data and found that “any given cubic volume of clay or granite ballast fines will weigh approximately 2.1 times as much as an equivalent cubic volume of coal dust.” Nelson Reply VS at 3. Adjusting the Tutumluer results to compare equal volumes of the three contaminants shows that there is “nothing remarkable about coal dust relative to the other contaminants.” Id. at 4.

AECC witness Douglas G. DeBerg, based on his 40 years of experience in railroad maintenance, also concluded that Prof. Tutumluer’s conclusion about the pernicious effects of coal dust was wrong.

In concluding that coal dust is the worst fouling agent witness Tutumluer ignores other contaminants and overstates the role coal dust may play in ballast section failure.

De Berg Reply VS at 7-8. Mr. De Berg observes that when he inspect the Joint Line recently for this case, "I did not note coal dust as being more of a problem than any other contaminate I've mentioned above." Id. at 8. See also WCTL Opening at 19-23

2. Maintenance Requirements On The Joint Line Reflect The Volume of Traffic On The Line; They Are Not Caused By Coal Dust.

BNSF and UP complain at great length about the amount of maintenance they must perform on the Joint Line, which they claim has increased greatly over recent years. See, e.g., VanHook VS at 14, Sloggett VS at 7, Connell VS at 17. Either expressly or implicitly, they blame coal dust. There is, however, a better explanation: the huge increase in traffic volume on the Joint Line over the last few decades.

BNSF's witness Bobb explains that since 1984, when the Joint Line began operation as a joint facility, through 2008, annual traffic volume increased from 76 million tons to 375 million tons. The Line has grown from a single track to a triple-tracked line with some portions quadruple-tracked and can accommodate 60 loaded trains per day, and the same number of empties.. Bobb VS at 3. Bobb, seeing the forest but missing the trees, says this increase in traffic "means more coal dust emissions". Id. at 4.

Mr. De Berg explains that this huge volume of heavy haul traffic places a tremendous strain on the track structure.

I have come to the conclusion that several critical components of the designed track structure are failing prematurely because of inadequate design. The Joint Line is carrying the most tonnage on an annual basis of any rail line in North America and is doing so by carrying these tonnages in rail vehicles that are maxed out to allowable axle loadings. * * * We in the rail industry have not been able to keep abreast of designing the track structure to continually support the tonnages being hauled without heavy and repeated maintenance practices and cycles for these practices. In many instances one or more items that compose the track structure

have failed because we have under designed the component or are using components that cannot perform because the design for using these components is flawed.

De Berg Reply VS at 1-2. These heavy loads require constant and increasing maintenance of all parts of the track, and in particular the ballast.

Ballast degrades by the repeated passage of heavy rail vehicles, and as tonnage accumulates the ballast degrades at ever increasing rates.

* * *

I believe that the Joint Line sub-ballast is constructed of undesirable materials and that the sub-grade accumulates moisture, is not thick enough to support a sufficient ballast section, and the ballast section itself is under designed. Neither railroad has addressed the fact that 350 MGT accumulate on these tracks annually, and that 286,000-lb. cars are used in the transporting of coal. As a result of these factors, the normal ballast maintenance cycles are shortened considerably. These maintenance cycles then change year by year as tonnage increases, and length of time between ballast maintenance activities does change from what is thought to be normal. I draw a conclusion that the track system was poorly designed, the tonnage grew at a rate unprecedented, and neither company had sufficient experience in maintaining the track with the volumes of tonnage being accumulated.

Id. at 2, 3-4. Mr. De Berg rejects UP witness Connell's statement that his railroad can't "sustain" the required level of maintenance "perpetually":

The traffic is there and growing, and the railroads must find the means of accomplishing the maintenance work that needs to be done to handle that traffic.

Id. at 5.

This is a crucial point. The huge traffic volumes that move over the Joint Line are not a curse but a blessing to the owners of that line. The traffic generates revenue from which to pay for the operating and capital costs of the line, including the costs of maintaining and improving it. Because of economies of scale and density, the growth in the Joint Line's

revenues ought to be greater than the growth in the costs of maintaining the line – but maintenance costs certainly have increased. increases in traffic on a coal line will be accompanied by increases in maintenance costs, including maintenance related to fugitive coal dust,. The problems in 2005 resulted because BNSF tried to avoid necessary increases in maintenance expenses, while happily booking the revenues. That won't work for long, and it didn't. 13/

Mr. De Berg explains in some detail how ballast fouling can be dealt with properly in track maintenance (Id. at 5-7) and why railroads sometimes fail to do so (including BNSF prior to the 2005 derailments) (Id. at 4, 6-7, 8-9). 14/

Another factor the railroads choose to overlook is that their own practices may contribute to the deposition of fugitive coal dust on the tracks of the Joint Line. As Mr. Nelson explains, patterns of coal dust accumulation (which the railroads themselves have observed) indicate that changes in track modulus (i.e., stiffness) at certain locations (as at a switch or the transition on or off a bridge) may cause vibration in the cars, and this may cause an increase in the deposition of coal dust. Poor maintenance of switches may increase vibration, and hence increase the deposition of coal dust on the track.

Thus, while the railroads complain that coal dust necessitates maintenance, in fact poor maintenance may cause a proportion of fugitive coal dust in the first place. Such contributions to fugitive coal

13/ Mr. De Berg discussed the causes of the 2005 derailments in great detail in his verified statement included in AECC's Opening Evidence and Argument.

14/ Mr. De Berg responds in his reply verified statement to several other erroneous claims about maintenance made by BNSF and UP. So does Mr. Nelson in his reply verified statement. See, also, WCTL Opening at 12.

dust deposition are completely in the hands of the railroads, but BNSF would have the Board ignore them.

Nelson Reply VS at 6. Mr. Nelson also shows how operating practices may result in increased deposition of coal dust, again a factor entirely within the control of the railroad. Id. at 6-7.^{15/}

F. BNSF's Coal Dust Tariff Represents A Present Threat To All PRB Coal Shippers.

On its face, the BNSF coal tariff appears to threaten denial of service to all coal shippers to whom it applies, if they fail to meet the "emission" standard. "Shipper shall take all steps necessary to ensure that Trains handling cars loaded with Coal from any mine origin that move over the Joint Line shall not emit more than an Integrated Dust Value (IDV.2) of 300 units" If this language does not state a requirement that a shipper must meet for BNSF to allow its train to traverse the Joint Line, what else could it mean?

Yet, in response to AECC's petition for declaratory order, BNSF represented to the Board that:

At the present time, BNSF has not prescribed any particular measures to ensure compliance with its coal dust emissions standards and there can be no inquiry regarding the reasonableness of non-existent standards.

BNSF Reply Petition at 7. In this proceeding, BNSF's partner UP adopts BNSF's earlier argument:

It would be premature for the Board to decide that the BNSF rules are unreasonable and invalidate them at this time. The rules do not establish any negative consequences for shippers whose trains do not comply, so shippers cannot be injured by the rules as they exist. [The BNSF coal dust tariff provisions] do not contain any enforcement

^{15/} Railroad operating and maintenance practices may cause an increase in coal lost particularly through the bottom of the car. Although BNSF claims that bottom losses are less important than losses off the top of the car, the pattern of accumulation of coal dust at certain locations indicates otherwise. See Nelson Reply VS at 12. Even if less coal dust is lost through the bottoms of cars than the tops, the dust that comes out the bottom goes directly onto the track, whereas coal blown off the top of a car is often blown away from the track. See, also, WCTL Opening at 19-23.

provisions, and BNSF has not announced any plans to enforce the coal dust emission standards in those tariff rules.

UP Opening at 16. UP makes no effort to reconcile this argument with the fact that BNSF itself is asking the Board in this proceeding to approve its coal dust tariff.

The contention that the coal dust tariff doesn't threaten coal shippers with "negative consequences" if they fail to comply was never plausible. It's like the little boy who tells his mother he won't actually use his slingshot; he just wants to hold it. Now BNSF has admitted what it has in mind. If the Board allows the coal dust tariff to stand, and shippers do not "voluntarily" comply with it, BNSF says it will employ "enforcement measures", which will be "limited to circumstances of inadvertent or intentional non-compliance." BNSF Opening at 26. "Limited"? If the enforcement measures apply to "inadvertent" and "intentional" violation of the coal dust tariff, what don't they apply to? The "enforcement measures" that BNSF has in mind include "a special handling charge for the non-compliant coal trains" and ultimately "the right to decline to provide service". Id. at 27.

Furthermore, BNSF says the rules will apply to UP trains as well as BNSF trains. Id. at 26 ("the coal dust emission standard must be met as soon as practicable for all movements on the Joint Line"). When UP filed its Opening in this proceeding, it said it had "received no information that BNSF intends to enforce the provisions of traveling on the Joint Line by refusing to allow Union Pacific trains to move." Id. at 18. Now it has.

UP said in its Opening that it supported BNSF's coal tariff rules on the understanding that they "do not apply to Union Pacific contract or common carrier customers" UP reserved "the right to challenge" any attempt by BNSF to enforce its rules

with respect to UP trains. Id. at 2. Presumably it's easy to "support" an imposition that applies only to the "other guy". It's a wholly different thing when it applies to you. 16/

We submit that the time for playing games about this tariff is long since past. BNSF has adopted a rule that it intends to enforce. If BNSF has its way, the tariff will apply, directly or indirectly, to every shipper of PRB coal. 17/

There is nothing "voluntary" about it. BNSF is holding the threat of this tariff over the heads of coal shippers to get them to spend large sums of money spraying chemicals on their coal. If BNSF was interested only in "voluntary" compliance, there was no need to publish a tariff.

III. CONCLUSION

As the operator of the Joint Line and the Black Hills Subdivision, BNSF is responsible for maintaining those lines. Its failure to maintain the Joint Line adequately resulted in two derailments in 2005 and severe disruption of rail service for an extended period of time. BNSF decided to blame fugitive coal dust, rather than its own deficient maintenance, for the derailments, and is now trying to impose on its customers an onerous obligation to prevent coal dust from blowing off the open-top cars that BNSF requires its customers to use.

BNSF asked the Board, in its Reply Petition, to approve its coal dust tariff on the ground that it promoted "safe and efficient rail operations and of reliability of service".

16/ Mr. Nelson provides further analysis of the effects of the BNSF coal tariff on UP customers in his Reply Verified Statement, at 14.

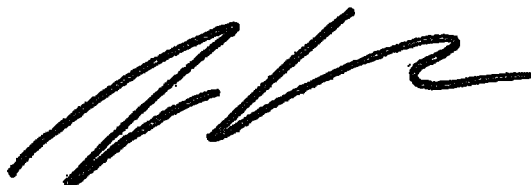
17/ Although the tariff does not apply as such to movements covered by rail transportation contracts, no contract lasts forever. Sooner or later, every PRB coal shipper will have to come to grips with this tariff.

PUBLIC/THERE IS NO OTHER VERSION

However, BNSF has provided no evidence that coal dust presents a safety issue; although BNSF keeps saying the coal dust caused the 2005 derailments, it has presented no proof that it did so. Neither has BNSF presented any evidence that its coal dust tariff would be efficient; BNSF keeps saying that preventing fugitive coal dust is better than performing maintenance to address it, but it has presented to evidence of the maintenance cost savings it would achieve, nor any evidence of the costs that would be imposed on its shippers.

Therefore, BNSF has failed to present a prima facie case in support of its request for approval of the coal dust tariff, and the request should therefore be denied.

Respectfully submitted,



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Dated: April 30, 2010

PUBLIC VERSION/CONTAINS REDACTED INFORMATION

**REPLY VERIFIED STATEMENT OF
MICHAEL A. NELSON**

**REPLY
VERIFIED STATEMENT
OF
MICHAEL A. NELSON**

My name is Michael A. Nelson. I am a transportation systems analyst with 30 years of experience in railroad competition and coal transportation. A summary of my experience is provided in my verified statement contained in the Opening Evidence and Argument submitted by Arkansas Electric Cooperative Corporation (AECC).

On behalf of AECC, I have been asked to comment on the opening evidence submitted by BNSF Railway (BNSF) and Union Pacific Railroad (UP), including several specific claims and assertions made by these railroads within the following general themes:

1. Coal dust is “pernicious” in some way that differentiates it from other contaminants that routinely foul rail ballast and routinely require remedial maintenance;
2. Coal dust continues to accumulate, and often can’t be seen;
3. It is preferable to prevent virtually all coal dust than to address coal dust through adjustments to the rail maintenance program necessitated by PRB volume levels;
4. The BNSF monitoring system provides a reliable method for assessing the deposition of coal dust by individual trains;
5. The BNSF Tariff would not be harmful to UP customers;
6. Failure to validate the BNSF Tariff will undermine dust control efforts; and,
7. Without such control, the accumulation of coal dust threatens rail safety and the ability of the rail network to move PRB coal.

Each of these is addressed below.

1. Coal Dust vs. Other Ballast Contaminants

BNSF witness Tutumluer asserts that coal dust is more harmful than other contaminants that routinely foul rail ballast and routinely require remedial maintenance.¹ However, his comparison of contaminants is flawed because his tests are based on the weight of each contaminant, rather than its volume (which is the factor that determines the extent of ballast fouling). When this error is corrected (using witness Tutumluer's own data) the basis for his finding that coal dust is more harmful than other ballast contaminants disappears.

The effects on ballast of coal dust (and other) fines at high concentrations were well-known before the PRB derailments. For example, Section 24.8.2 of the Handbook of Transportation Engineering plainly describes how any fines that fill the voids between ballast particles will cause the ballast to take on the characteristics of the fines, and to exhibit the characteristics of mud when wet.² Mr. Tutumluer's "finding" that ballast strength is significantly compromised when the ballast is saturated by wet coal dust is nothing new.

What is noteworthy about his study is not what he says about coal dust, but rather that he failed to reach basically the same conclusion for the other common ballast contaminants. This failure is inconsistent with more than a century of railroad experience with ballast contamination issues, and reveals the fundamental defect in witness Tutumluer's study that invalidates his comparison of coal dust to other contaminants.

¹ BNSF VS Tutumluer at 1.

² See Kutz, M., Handbook of Transportation Engineering (McGraw-Hill, 2004) at 24.12. This cite also documents the absurd nature of any claim that prior to the 2005 Joint Line derailments the railroads were unaware that heavily fouled ballast, when wet, may provide diminished support for the track structure.

Witness Tutumluer's stated conclusion rests on testing in which the performances of different fouling agents are compared to each other at concentration levels set on the basis of the percentage of weight.³ However, as witness Tutumluer's data reveal, the substances he is comparing differ widely in terms of density, with coal dust being by far the least dense (i.e., coal dust occupies the largest volume per unit of weight). All else equal, a quantity of coal dust that weighs the same as a given amount of clay or granite fines will occupy a substantially larger cubic volume than will the clay or granite. However, the destabilization of track ballast results not from the weight of the fouling material in the voids, but from the extent to which the material fills the cubic volume of the voids, preventing the friction between ballast particles that provides ballast strength.⁴

Witness Tutumluer indicates that 25% by weight of coal dust produces "fully fouled" ballast conditions in which contact between ballast particles has been substantially reduced or eliminated. According to witness Tutumluer, 25% by weight of coal dust is "enough to fill up all the voids in ballast corresponding to a void ratio of 43%."⁵ However, he never provides comparable information for the other contaminants, so he never establishes that his tests of those contaminants reflect "fully fouled" conditions analogous to those in the coal dust test. Using the information on relative densities provided by witness Tutumluer, any given cubic volume of clay or granite ballast fines will weigh approximately 2.1 times as much as an equivalent cubic volume

³ VS Tutumluer, Exhibit 4, Table 2 at 100.

⁴ VS Tutumluer at 6-7

⁵ VS Tutumluer, Exhibit 3 at 1.

of coal dust.⁶ Put another way, any given weight of clay or granite ballast fines will occupy a little less than half of the cubic volume of an equivalent weight of coal dust. Thus, the cubic volumes of clay and granite that witness Tutumluer compares to coal dust in his “25 percent by weight” tests are comparable to or slightly less than the cubic volume of coal dust used in his “15 percent by weight” test. A comparison of these results (i.e., that are based on comparable cubic volumes of contaminants) shows nothing remarkable about coal dust relative to the other contaminants. Witness Tutumluer never reports the results of tests involving clay or granite at the cubic volume level exhibited by coal dust in the “25 percent by weight” test (which filled all of the voids and produced fully fouled ballast). To do so apparently would have required use of a “percent by weight” of clay or granite in excess of 50 percent. It is hardly surprising – indeed it should be expected – that a volume of coal dust sufficient to produce fully-fouled ballast has a greater effect on ballast strength than does a much smaller volume of clay or granite.

AECC witness De Berg confirms that a comparison between ballast highly fouled with coal dust vs. ballast fouled to a lesser extent by other contaminants is invalid, and would tend to overstate the adverse effects of coal dust relative to other substances. Witness De Berg also indicates that, outside of the information sponsored by the railroads and presented in this proceeding, over 100 years of railroad experience with coal dust, including over 30 years in the PRB, provides no support for the proposition that coal dust is more destructive than any other substance that routinely accumulates in rail ballast.

⁶ Estimated for clay based on relative specific gravities of $2.7/1.28 = 2.11$, using the information presented in VS Tutumluer, Exhibit 3 at 6. While this source does not provide a specific gravity labeled as being for granite ballast fines, it does provide a value of 2.65 for the specific gravity of “sand grains”. This is understood to be representative of the specific gravity of granite ballast fines, and leads to an estimated value for granite ballast fines of $2.65/1.28 = 2.07$.

Ultimately, BNSF provides no credible foundation for its argument that coal dust is more damaging to ballast stability than are other common ballast contaminants.

2. Continued Accumulation of Coal Dust

BNSF and UP complain repeatedly that coal dust continues to accumulate despite their ongoing maintenance efforts.⁷ This complaint is absurd on its face: UP and BNSF are moving hundreds of millions of tons of coal annually from the PRB, and there is no viable way to eliminate fugitive coal dust. Toppers do not eliminate all fugitive coal dust from open-top cars, rapid-discharge doors can leak product directly onto the ballast, and other leakage may occur from drainage holes, car body panel seams and other sources. If the railroads intend to keep moving coal, they need to plan and execute a maintenance program that is consistent with actual dust levels.

Given the impossibility of eliminating coal dust entirely, the railroad complaints regarding the accumulation of coal dust and its lack of visibility reveal the inadequacy of rail efforts to understand and address two fundamental aspects of coal dust control and remediation.

A. Patterns of Accumulation

BNSF claims that shippers alone are responsible for coal dust accumulating on the Joint Line track,⁸ but in fact the patterns of coal dust accumulation the railroads have identified indicate that railroads' own operating and maintenance practices may be responsible for causing a substantial amount of fugitive coal dust. Both BNSF and UP have apparently noticed a pattern wherein accumulations of coal dust have tended to

⁷ See, for example, BNSF Argument at 1; UP Argument at 8.

⁸ BNSF Argument at 5.

occur at switches and bridges,⁹ but neither railroad appears to have grasped fully the significance of this pattern for coal dust control efforts.

The railroads' opening filings document several locations where substantial visible accumulations of coal dust have occurred in recent years. Essentially all of these locations involve bridges¹⁰ or switches.¹¹ BNSF witness Sloggett begins to touch on the significance of this pattern when he makes reference to the "increased vibration" experienced by a train passing through a switch.¹² Such vibration can occur, for example, due to changes in track modulus associated with the use of wood crossties under switches or through the passage of car wheels over the gap in manganese frogs (the vibration from which may be increased if the frog is not properly maintained).

Vibration of cars at such locations likely causes downward movement of coal particles in the load, including movement through drainage holes and rapid discharge door seals onto the track. The railroads ought to recognize this possibility, as their

[REDACTED]

[REDACTED]

In short, the presence of notable coal accumulations at switches ought to lead the railroads to understand that a disproportionate amount of fugitive coal dust may result from the coal being moved out the bottoms of cars by vibration. Poor maintenance of frogs and inattentiveness to modulus changes may cause increased vibration. Thus, while the railroads complain that coal dust necessitates maintenance, in fact poor maintenance

⁹ BNSF VS VanHook at 3; UP Argument at 5, Footnote 1.

¹⁰ For example, MP 62 and the bridge near Nacco Junction, as referenced in BNSF VS Sloggett at 8.

¹¹ "Many switches", as referenced in BNSF VS Sloggett at 6. [REDACTED]

¹² BNSF VS Sloggett at 5.

¹³ [REDACTED]

may cause a proportion of fugitive coal dust in the first place. Such contributions to fugitive coal dust deposition are completely in the hands of the railroads, but BNSF would have the Board ignore them.

Railroad operating practices may also contribute to the observed deposition of fugitive coal dust on bridges. In addition to changes in track modulus that may occur at the transition between a bridge's structure and its approaches, the bridge locations the railroads cite as showing coal dust accumulations are all located at or immediately adjacent to the bottoms of "big sags".¹⁴ This suggests that slack action forces may play a significant role in the deposition of coal on the bridges. Indeed, [REDACTED]

[REDACTED] slack action in big sags sometimes results in the spillage of coal over the sides or ends of cars.¹⁶ This is corroborated by the [REDACTED]

[REDACTED] Thus, train handling practices may increase the deposition of concentrated amounts of fugitive coal on the ballast. This is also a factor completely in the hands of the railroads, but which BNSF would have the Board ignore.

¹⁴ [REDACTED]

¹⁵ [REDACTED]

¹⁶ It is often assumed that slack action on PRB coal trains is able to be managed effectively through the use of DPU's. However, in the typical PRB unit train consist, no locomotive is placed in the middle. In a 135-car train, this may leave in excess of 19,000 tons of railcars and coal subject to slack action between the lead and trailing locomotives. In the hands of a crew that has not mastered the complex slack handling requirements imposed by the saw-toothed profile of the Joint Line, or even a more experienced crew that "bunches slack" on the descending side of a sag to facilitate the subsequent ascent, slack action forces may play a significant role in the observed depositions of coal on the bridges at the bottoms of big sags. Indeed, the railroads' observations regarding the increased deposition of fugitive coal beginning in the late 1990's correlates closely with the proliferation of the longer PRB unit coal trains, for which slack action likely would be most significant.

¹⁷ [REDACTED]

Overall, the pattern of coal deposition suggests strongly the importance of such considerations as rough track and train handling, which are under the control of the railroads, as substantial contributing factors in observed coal dust accumulations.

B. Detection

BNSF and UP claim that coal dust is particularly difficult to address through maintenance because coal dust accumulating in ballast is not necessarily visible from the surface.¹⁸ However, the same is true of other common sources of ballast contamination. Witness Tutumluer has described how ballast particles break down due to passing loads, and how subgrade particles may migrate upwards. As confirmed by AECC witness De Berg, neither of these common sources is generally visible from the surface, either. The railroads' claim that this property of coal dust is unique is simply incorrect.

Likewise, the claim that there is no way to determine where ballast maintenance is needed is also incorrect. In addition to increased alertness to the factors that cause the deposition of coal dust, and the programming of future maintenance cycles based on observed accumulation rates, the established technology of ground-penetrating radar (GPR) is used routinely by railroads to assess ballast-cleaning needs. While many of the applications of this technology to date have occurred in Europe¹⁹, it has been found to work in the U.S. as well. Indeed, BNSF witness Tutumluer's unsupported attempt to downplay GPR²⁰ is refuted by his own co-authorship of a paper documenting the use of GPR on four rail segments in the U.S., including 34.9 miles on BNSF between Crawford,

¹⁸ See, for example, BNSF Argument at 21-22; UP VS Connell at 14.

¹⁹ See, for example, A. Kathage, J. Niessen, G. White and N. Bell, "Fast Inspection of Railway Ballast By Means of Impulse GPR Equipped with Horn Antennas" Proceedings of Railway Engineering (Volume 10, No. 9) September 2005.

²⁰ BNSF VS Tutumluer at 6. Witness Tutumluer concurs that GPR can "...indicate the amount of ballast fouling", but asserts that GPR is "...for future implementation, and...is not yet a standard practice."

NE and Ardmore, SD and a particularly successful use on 69 miles of the PRB Joint Line.²¹ A group of witness Tutumluer's colleagues from the University of Illinois has similarly concluded that GPR is "...an effective technique to assess railroad track ballast substructure condition."²²

Overall, the railroads have ample means to assess and address maintenance needs associated with latent ballast fouling from different sources. The attempt to portray this as a coal dust issue that can only be solved by eliminating coal dust is simply invalid.

3. Control vs. Maintenance

BNSF asserts repeatedly - but never demonstrates - that it is preferable to address coal dust issues through prevention rather than through maintenance.²³ Complete prevention is neither possible nor necessary. As described in further detail by AECC witness De Berg, ballast is able to function properly in the presence of various types of impurities, as long as the impurities are removed before they become excessive. The question of the "preferable" approach is primarily an empirical one. Conceptually, the question is what action or combination of actions maximizes the amount by which the benefits of the actions (primarily reduced maintenance-related costs) exceed their costs. BNSF has not even begun to address this question, because it has not identified its costs

²¹ Roger Roberts, Imad Al-Qadi, Erol Tutumluer and Andreas Kathage, "Ballast Fouling Assessment Using 2 GHZ Horn Antennas – GPR And Ground Truth Comparison From 238 KM Of Track", as presented at http://www.alphageofisica.com.br/gssi/gpr_2008/RailEng%202007_br.pdf.

This paper concluded that ... "(V)ery good agreement between the GPR data and available ground truth is observed along the 69 miles of GPR data obtained on tracks south of West Bill, WY. The GPR data clearly revealed the extent of ballast fouling associated with mudspots, demarcated the extents of undercutting, and assessed the condition of the ballast where undercutting has not been recently done."

²² Imad L. Al-Qadi, Wei Xie, Roger Roberts, and Zhen Leng, "Data Analysis Techniques for GPR Used for Assessing Railroad Ballast in High Radio-Frequency Environment", Journal of Transportation Engineering (Volume 136, Issue 4) April 2010, pp. 392-399.

²³ See, for example, BNSF VS Fox at 1. The railroads apparently define "prevention" as "making shippers responsible for prevention".

or compared its postulated savings to the additional costs that compliance with the Tariff would impose on shippers.

AECC witness De Berg has described how each line may face its own set of considerations that define the needed or appropriate frequency of ballast cleaning. Such frequency depends upon situation-specific factors, including the characteristics of the ballast, and presence of other ballast contaminants, as well as traffic levels. Although BNSF was performing inadequate ballast maintenance between the mid-1990's and 2003, evidence suggests that before that period BNSF was undercutting Joint Line trackage with reasonable frequency. For example, old track charts indicate that the segment between MP 49.0 and MP 52.4, which was constructed in 1979, was undercut for the first time in 1986, and then undercut again in 1996. With the growth in volume that has occurred in the interim, a 7-10 year undercutting cycle applied in the 1980's and 90's would translate to about a 3-5 year cycle as of the time of the derailments (i.e., to hold MGT between undercuttings roughly constant). Having demonstrated in the past its ability to perform ballast maintenance with a frequency appropriate for prevailing volumes, BNSF offers no plausible explanation of why it could not perform such maintenance in the future.

4. The Unreliability of BNSF's Monitoring System

BNSF relies heavily on the proposition that the Trackside Monitors (TSM's) it plans to use to measure compliance with the Tariff provisions "...determine accurately the coal dust levels during the entire period that a train is passing by the TSM."²⁴ However, there are many considerations that demonstrate plainly the unreliability of the monitoring system for this purpose.

²⁴ BNSF VS VanHook at 7.

A. The TSM Does Not Measure the Coal Dust at Issue

UP witness Muleski provides important information regarding the mechanisms through which fugitive coal dust particles leave the tops of railcars. Basically, larger particles, if sufficiently disturbed, may fall from the top of a railcar onto the ballast in the vicinity of the railcar. Smaller particles, however, may become suspended in air, and “can travel a considerable distance away from their source.”²⁵ Unless the wind is either completely still or perfectly aligned with the track, the suspension of airborne particles will tend to result in their eventual deposition at points away from the track.

If the TSM were measuring the larger particles of coal that actually fall onto the ballast – and ignoring the airborne suspension of small particles that moves away from the track – it would not matter if the wind had an easterly vs. westerly component, or whether another train had recently passed. However, the TSM readings are sensitive to the direction of wind, as well as to the passage of other trains within a period of minutes.²⁶ In other words, the readings reflect the presence of the airborne cloud of small particles – which tends to move away from the ballast while in suspension - rather than the larger particles that tend to fall directly onto the ballast.²⁷

In this context, it is important to note that the TSM does not purport to measure any aspect of coal that falls from the bottoms of railcars directly onto the ballast. While BNSF has attempted to portray losses from the tops of cars as being much larger than the

²⁵ UP VS Muleski at 5.

²⁶ BNSF VS Sultana at 4-5.

²⁷ The sensitivity of the TSM readings to fine particles that are irrelevant to dust deposition, rather than the coal that actually falls on the ballast, is further corroborated by the way the entire measurement methodology had to be modified to try to control the large impact on measured dust values caused by locomotive exhaust. Notwithstanding the fact that locomotive exhaust has no effect on the deposition of coal on rail ballast, the TSM produces a signal from such exhaust that is strong relative to the signal generated by the aerial suspension of fine coal dust particles. Basically, the TSM measures clouds, not the deposition of contaminants on rail ballast.

losses from the bottoms, most of the estimates of top-side losses that correct for moisture level changes have produced estimates at the low end of BNSF's stated range.

Conversely, BNSF's statement of bottom losses on a "pounds per mile" basis makes the numbers look small, until the length of the movement is taken into account, along with the propensity of the coal to exit the car during the portion of its trip closest to the mine (i.e., while on the Joint Line). The TSM's simply ignore this significant component of dust deposition.

B. BNSF's Analysis of The TSM Data Demonstrates Conclusively its Unreliability

BNSF witness Sultana, a "Master Black Belt" Six Sigma Specialist, conducted extensive analyses of the TSM data, but was unable to establish reliable relationships between TSM readings and observed values of seemingly-relevant data. For example, while BNSF witness Emmitt views it as common knowledge that fugitive coal dust varies with wind conditions and train speed,²⁸ witness Sultana had difficulty identifying any such relationships in the data. Indeed, witness Sultana concluded that very little of the variation in TSM readings can be explained by factors he could observe, and that dusting is determined by factors "upstream" of the TSM.²⁹ Notwithstanding the fact that a low dust reading at the TSM cannot discern between a train that is carrying a well-secured load vs. a train that encountered high winds and lost its loose coal particles on the Joint Line prior to reaching the TSM, BNSF management elected to rely on this "random number generator" as the basis for its monitoring program

²⁸ BNSF VS Emmitt at 4. On this basis, it should also be noted that train speed is another factor in dust deposition that is controlled by the railroad, and not the shipper, notwithstanding witness Sultana's inability to discern such a relationship in the highly erratic TSM data.

²⁹ BNSF VS Sultana at 6.

C. Several Aspects of the TSM Location Contribute to the Unreliability of TSM Dust Readings

The railroads' opening evidence documents at least four ways in which the dust readings generated by the TSM at MP 90.7 may not be representative of the propensity of a given train to generate fugitive coal dust:

1. [REDACTED]
2. A turnout and culvert are located in the immediate vicinity of the TSM. Any rough track resulting from BNSF's maintenance practices pertaining to manganese frogs and changes in track modulus may cause vibrations that generate localized dust;
3. The TSM is located near the bottom of a "big sag". As described in Section 2A (above), some loaded trains in such locations may experience significant slack action due to railroad trainhandling practices that redistribute the load and generate localized fugitive coal dust. Indeed, BNSF admits candidly that the Joint Line monitoring site was selected not because it was representative of accumulating coal dust, but because it "...was a location that significant dust had accumulated in the past";³¹ and,
4. A private road crosses the rail right-of-way near the TSM – the passage of vehicles or trains periodically could kick up dust/dirt that affects measured dust readings.

As a result of these considerations, the readings generated by the TSM's are not representative of coal dust deposition on the Joint Line rail ballast, and cannot reasonably be relied upon in the manner BNSF has planned.

³⁰ [REDACTED] Empty UP trains returning to the PRB have limited opportunities to cross from the eastern side of the Joint Line (where they enter at Shawnee Junction) to the western side (from which they enter the large UP yard and crew change point at Bill, WY).

³¹ BNSF VS VanHook at 7.

5. Impacts on UP Customers

UP indicates it would be highly concerned if BNSF took actions to enforce dust control performance by UP shippers.³² Its position of being “on standby” is premised explicitly on the fact that BNSF had not notified UP of its intent to enforce coal dust requirements against UP shippers (which UP says it would oppose).³³ Apparently, the difference between the coal shippers and UP on this issue is that prior to the opening statements BNSF has threatened the shippers, but not UP, with specific consequences for noncompliance with the BNSF Tariff.

UP and BNSF agree that General Order No. 19 provides a mechanism through which BNSF could require compliance by UP shippers.³⁴ BNSF further states its intention to enforce its coal dust limitations through surcharges or denial of service.³⁵ This statement of intent appears to remove any vestiges of UP’s stated rationale for allowing the BNSF Tariff to go unchallenged.

Even for shippers currently under contract with UP, the BNSF Tariff will cause harm by forcing such shippers to bear noneconomic costs, and by any aspect of the implementation of the rules that undermines rail competition. Such impacts were covered in detail in AECC’s Opening Evidence and Argument.

³² UP Argument at 19-20.

³³ UP Argument at 18-19.

³⁴ BNSF VS Fox at 7-8; UP Argument at 18.

³⁵ BNSF Argument at 26-27.

6. Effect of Failure to Validate BNSF Tariff On Dust Control Efforts

A. Effects on UP Dust Control Initiatives

UP expresses a concern that a failure to validate the BNSF Tariff will impede initiatives UP may wish to undertake to address coal dust issues.³⁶ For reasons articulated in greater detail by NS, this concern is unfounded. The reasonableness of any dust control initiative inherently is a function of its own costs and benefits. As long as UP doesn't propose the same program, the reasonableness of its initiatives will not be affected by any determination that the BNSF Tariff is unreasonable.

B. Effects on Voluntary Cooperation

UP also expresses concern that Board rejection of the BNSF Tariff, or the establishment of a "narrow standard" of reasonableness, will "chill" voluntary cooperation by shippers in efforts to "effectively and efficiently reduce their cost dust emissions".³⁷ On the contrary, the BNSF Tariff has encountered resistance in large part because it imposes costs on shippers that are larger than the benefits generated. Initiatives that cost more than they save are invalid from a public interest perspective, and constitute an unsound economic condition contrary to the Board's mandate pursuant to Section 10101(5) of the national rail transportation policy. A rejection of the type of inefficient cost-shifting that forms the core of the BNSF Tariff would take such non-starters off the table, and ensure that both shippers and carriers have a common understanding of the definition of reasonableness. Above and beyond the proven willingness of shippers (including AECC) to make investments in support of legitimate rail efficiency

³⁶ UP Argument at 20.

³⁷ UP VS Glass at 12-13.

improvements and cost reductions,³⁸ UP's stated concern overlooks the obvious incentive for voluntary cooperation that would be present if the shipper and the railroad had a common understanding that a given proposal would satisfy the Board's reasonableness criteria (and thus be subject to imposition through a Board order).

7. Safety and Throughput Issues

BNSF refers repeatedly to alleged safety issues and the Joint Line derailments of May 2005, as if those derailments resulted primarily or entirely from the effects of coal dust in the ballast.³⁹ However, these repeated assertions are devoid of documentation demonstrating such a linkage, or even that the derailments resulted from any type of ballast fouling. For example, BNSF witness Tutumluer repeatedly states without reference to any document or study an assertion that the combination of water and coal dust was responsible for the Joint Line derailments.⁴⁰ This assertion is particularly incongruous in light of witness Tutumluer's own description of ballast wear and infiltration of subgrade materials as common mechanisms of ballast fouling. His study does not acknowledge – let alone test – the combinations of contaminants that actually appear in Joint Line ballast, even though there is ample evidence that such contaminants consist largely of material other than coal dust.

BNSF witness Fox identifies the 2005 derailments as the cause that led “BNSF to focus on the problem of coal dust with a heightened sense of urgency” and ultimately resulted in the coal dust tariff.⁴¹ Indeed, witness Fox appears to be the original source of the assertion in this proceeding that a “mixture of coal dust and water” formed the central

³⁸ Such investments include, but are not limited to, acquisition of fleets of high-capacity railcars, and expansion of unloading facilities to accommodate greater train lengths.

³⁹ BNSF VS Fox at 4-6.

⁴⁰ See, for example, BNSF VS Tutumluer at 2.

⁴¹ BNSF VS Fox at 6.

cause of the derailments.⁴² However, a careful examination of witness Fox's more detailed statements regarding the derailments does not support that simple portrayal.

To fully grasp the metamorphosis performed by witness Fox, it is useful to review his testimony in the context of his past descriptions of the factors that caused the derailments. Specifically, in November 2005, witness Fox was the individual who provided the response to a letter that had been submitted by AECC President and CEO Gary Voigt to then-STB Chairman Roger Nober. Mr. Voigt's letter, attached hereto as Exhibit 1, had pointed out the fallacy of railroad claims regarding the supposedly-high level of precipitation that preceded the derailments, and concluded that the derailments resulted from "...the failure of the railroads to maintain the roadbed in useable condition".

In response, Mr. Fox, in the letter attached hereto as Exhibit 2, asserted that "the April/May precipitation...result[ed] in shortened drying cycles at a critical point when the frost was leaving the ground. These events caused the soft track conditions that led to two derailments." He then added that this "situation was also exacerbated by the accumulation of coal dust in the track structure." His description left no ambiguity that the soft track conditions he identified as the cause of the derailments were caused by unusually wet conditions, and existed with or without consideration of the coal dust. Coal dust made those conditions worse, but it did not cause them.

In his current testimony, witness Fox presents a description of the circumstances surrounding the Joint Line derailments that initially appears to be consistent with his earlier description.⁴³ He cites an "extraordinary amount" of precipitation in April and

⁴² BNSF VS Fox at 5.

⁴³ BNSF VS Fox at 5.

May, short drying cycles and the frost leaving the ground, as he did in 2005. To this description, he adds a reference to “additional sub-surface moisture... rising up through the roadbed.” Again, he describes coal dust as exacerbating the drainage problems caused in the first instance by excess moisture.

The difference now is that Mr. Fox concludes this description by simply ignoring the circumstances he has described, and claiming that the inability of the roadbed to support the track resulted entirely from the presence of coal dust and water in the ballast. In the span of a single sentence – and without the benefit of any evidence – Mr. Fox basically wishes away all of the issues implicitly suggested by his initial description that have nothing to do with coal dust. These include, among other things, questions related to the adequacy of the design and maintenance of drainage facilities; the adequacy of subgrade materials and preparation; the adequacy of BNSF’s inspection and maintenance practices pertaining to soft spots and dips that may arise when frost leaves the ground; and the accumulation of ballast fouling materials other than coal dust, including worn ballast, locomotive sand and upward migration of clay particles from the subgrade. The role of factors other than coal dust in causing the May 2005 derailments was documented in detail in AECC’s Opening Evidence and Argument, which demonstrates the inaccuracy and wishful nature of Mr. Fox’s conclusion.

However, even if the large body of evidence regarding the role of factors other than coal dust in causing the derailments were temporarily set aside, Mr. Fox’s “coal dust and water” assertion still would not withstand scrutiny. While Mr. Fox characterizes the April/May precipitation as “extraordinary”, his own data show that the precipitation that preceded the derailments was not only unremarkable, but in fact was **below average**:

April/May Precipitation	Fox (2005) ⁴⁴	Average
Gillette	4.79 inches	4.92 inches ⁴⁵
Douglas	3.67 inches	4.14 inches ⁴⁶

The fact is that the May 2005 derailments occurred under conditions that should have been anticipated fully by BNSF. With decades of experience operating the Joint Line, it should not come as a surprise to BNSF that it sometimes snows and rains in eastern Wyoming in the spring when the frost is coming out of the ground. Nevertheless, BNSF has elected to exaggerate the severity of the circumstances it faced rather than take responsibility for its multiple roles in the derailments. Notwithstanding BNSF's false and misleading claims regarding the amount of precipitation and the sudden transformation of coal dust into railroad kryptonite, the fact is that after decades of largely successful operation of the Joint Line, BNSF got sloppy on some important maintenance and construction details that wound up causing substantial problems.

In the interests of transparency and accountability, the Board should not permit BNSF to parlay such self-inflicted problems into the economically unsound burden that would be placed on coal shippers by the BNSF Tariff. The railroads' unsubstantiated assertions regarding coal dust as a primary determinant of the May 2005 derailments are entitled to no weight, and the Board should therefore disregard all of the railroad claims that attempt to link coal dust to rail safety and/or PRB throughput. Coal dust poses legitimate maintenance issues that warrant careful consideration by railroads and shippers

⁴⁴ Source: Exhibit 2.

⁴⁵ Source:

http://www.weather.com/outlook/travel/businesstraveler/wxclimatology/monthly/USWY0067?locid=USWY0067&from=monthAvgGraph_bottomnav_undeclared.

⁴⁶ Source:

http://www.weather.com/outlook/travel/businesstraveler/wxclimatology/monthly/USWY0047?locid=USWY0047&from=monthAvgGraph_bottomnav_undeclared.

of potential remedial steps, but the safety and throughput “bogeymen” should not be permitted to interfere with the development and implementation of economically efficient actions.

VERIFICATION

I, Michael A. Nelson, declare under penalty of perjury that the foregoing
is true and correct. Further, I certify that I am qualified and authorized to file this
verified statement.

A handwritten signature in black ink, appearing to read "Michael A. Nelson", written over a horizontal line.

Michael A. Nelson

Executed on April 26, 2010

Exhibit 1 to
Reply Verified Statement
of
Michael A. Nelson



**Arkansas Electric
Cooperative Corporation**

Your Touchstone Energy Cooperative



8000 Scott Hamilton Drive
P.O. Box 194208
Little Rock, Arkansas 72219-4208
(501) 570-2200

August 12, 2005

The Honorable Roger P. Nober, Chairman
Surface Transportation Board
1925 K Street, N.W.
Washington, D.C. 20423-001

Re: Railroad letters about fall peak service plans

Dear Chairman Nober:

Arkansas Electric Cooperative Corporation (AECC) is a generation and transmission cooperative providing electric generation and transmission services for the 17 rural electric distribution cooperatives in Arkansas. Our member cooperatives in turn serve their approximately 430,000 members by providing reliable and economic retail electric service. AECC uses coal, natural gas and fuel oil to generate this electric energy. We also utilize hydroelectric generation when available and purchase power when it is economical to do so.

Coal fuels the majority of AECC's generation. AECC's coal-fired generating plants are jointly owned with other utilities, and were designed to burn the abundant and clean burning sub-bituminous Powder River Basin (PRB) coal found in Wyoming and Montana. The plants in which we have an ownership interest normally consume in excess of 14 million tons of PRB coal each year. For transporting this coal to our Arkansas plants we have depended on the railroads since the late 1970's. AECC is currently in a dilemma with respect to quality rail transportation service.

AECC appreciates your efforts last year and again this year to get the railroads to publicly say how they plan to deal with the peak demand for their transportation services. The information presented by the railroads gives us some indication of how the railroads are approaching the problems we are experiencing with rail transportation. The recognition bestowed upon the Board by the Congressional Budget Office highlights the way actions by the Board can improve performance for railroads and customers alike.

Of particular importance this year, the peak planning process enables the Board to examine the railroads' efforts to satisfy the needs of PRB coal users in the context of other peak period demands. This, in turn, may enable the Board to identify further steps it could consider to further improve the situation for railroads and their PRB coal customers.

As you know, to move PRB coal to plants in Arkansas, the only options currently available involve the BNSF Railway (BNSF) and/or Union Pacific (UP). One of AECC's plants is completely captive to UP. For these reasons, AECC focuses primarily on the BNSF and UP letters.

BNSF and UP both emphasize the way the requirements of the investment community influence their actions regarding capacity. BNSF's Matthew Rose states, "...there are significant financial constraints that will not allow BNSF...to invest in sufficient capacity." UP's Dick Davidson says, "...we expect to invest in new capacity as returns on investment justify, given the revenues we are able to earn in the marketplace and the constraints that government actions place on them." Basically, the railroad position seems to be that if there's enough traffic paying high enough rates, they'll be able to supply enough capacity. The corollary to that seems to be that everyone should expect that they're going to need more revenue if the needed capacity is to materialize.

AECC is keenly aware that the railroads do not currently have the infrastructure needed to deliver the products they have contracted to transport. Even before the Joint Line situation arose, our plants did not receive all the coal transportation obligated under contract in 2004. This situation was made much worse by the crisis that began in mid-May this year on the PRB Joint Line. The railroads have indicated that this shortfall in deliveries will continue through 2005 and may even continue into 2006. Furthermore, they have indicated they will not make up these shortfalls.

This lack of performance by the railroads places a very heavy financial burden on our members and other electric consumers in Arkansas and elsewhere. AECC and the other plant owners have had to restrict the amount of coal that is being burned at our coal-fired power plants. AECC has an obligation to serve its members. Therefore, we are providing the needed electrical generation from other, much more expensive, sources. Our members, the electric consumers, are the ones who ultimately must pay the higher price.

This is the third time in the last twelve years that we have had to place burn restrictions on our coal-fired power plants due to an inability on the part of the railroads to satisfy their contractual and/or common carrier obligations. If anything, we are experiencing shortfalls of increasing severity and duration. Given the huge growth in PRB volumes that occurred during this time, AECC believes that neither coal shippers nor the Board can rely on the proposition that the railroads and the investment community, left to their own devices, will automatically supply adequate capacity.

A closer look at the origins of the current Joint Line problem demonstrates the dangers associated with this approach. BNSF and UP have both asserted that the cause of the PRB Joint Line crisis this year was the “unusual” and “unprecedented” amounts of snow and rainfall acting upon accumulated coal dust. In checking National Oceanic and Atmospheric Administration (NOAA) data for this portion of Wyoming, we find no truth in these assertions. For example, the historical average amount of moisture received in May, expressed in inches of water, is 2.50 inches for Douglas, WY (near the south end of the Joint Line) and 2.95 inches for Gillette (near the north end). In May of 2005, Douglas received 2.55 inches, just 0.05 inches above average. At the same time, Gillette received 2.89 inches or 0.06 inches below average. Both locations received less than average precipitation in April 2005. For the entire precipitation cycle beginning October 1, 2004, there appears to be no part of the Joint Line that received abnormally high precipitation.

Given that the weather really was neither “unusual” nor “unprecedented”, the problem can properly be seen as the failure of the railroads to maintain the Joint Line roadbed in useable condition. As UP’s letter indicates, the accumulation of coal dust was not hidden, at least not from those responsible for operating and maintaining the line. Rather, the evidence suggests strongly that the railroads chose to simply let the dust accumulate rather than take the steps needed to maintain the roadbed.

Deferring maintenance might be understandable if the line in question were a marginal branch line that didn’t cover its costs. However, the PRB Joint Line is one of the busiest rail lines in the world. In maximum rate reasonableness cases, the Board has found that this facility generates traffic that “pays its own way” in terms of covering operating costs and providing a market rate of return on the capital associated with the relevant portions of the rail network. The railroads cannot credibly assert that the volumes or rates associated with PRB coal traffic are insufficient to justify proper maintenance of the Joint Line.


What coal shippers and the Board are left with is the apparent willingness of the railroads to “bet the rent” that the drought of recent years in eastern Wyoming would continue, and let their bottom line results be inflated by the “savings” associated with not maintaining the line. Unfortunately, pressure from the investment community to produce favorable results in the short term can lead to this type of myopic decision-making. Coal shippers, who are here for the long term, need the Board’s help to send a clear message to the investment community and to railroad management: The public interest does not permit this type of trifling with the rail network in the name of short-term gains.

With the repeated and ongoing problems associated with moving PRB coal to our plants, AECC and others looking for reliable and economical fuel supply for electric generation are being forced to look at alternative fuel supplies, many of which do not involve the railroads at all. Current and future power plants may make much greater use of locally available lignite and petroleum coke or fossil fuels from Central and South America. Needless to say, actions by the railroads that push users of America’s most abundant and economical energy resource to convert to more expensive imported fuels cannot be viewed as being consistent with the public interest.

AECC is still evaluating specific potential steps that may be warranted in light of the Joint Line problems and the responses we have received to date from the railroads regarding our efforts to adapt to the PRB shortfall. In some cases those efforts involve rail transportation of coal from non-PRB sources, which should not be affected by the Joint Line problems or any associated embargoes. Unfortunately, we may need the Board's help to get the rail service we are entitled to under contract and/or the common carrier obligation of railroads. We can assure the Board that any action we ultimately request will be consistent with the Board's mandate to protect the public interest regarding the rail network, and with legitimate capacity issues the railroads may have associated with the provision of service to all of their customers during the peak period.

AECC appreciates very much the opportunity to submit these comments for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read 'G. Voigt', is written over a horizontal line.

Gary Voigt
President and Chief Executive Officer
Arkansas Electric Cooperative Corporation

Exhibit 2 to
Reply Verified Statement
of
Michael A. Nelson

PUBLIC VERSION

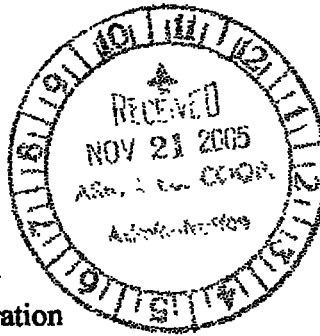


Gregory C. Fox
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November 18, 2005

Gary Voigt
President and Chief Executive Officer
Arkansas Electric Cooperative Corporation
8000 Scott Hamilton Drive
P. O. Box 194208
Little Rock, Arkansas 72219-4208



cc: Bob L
Maurice
Steve Sharp

Re: Railroad Letters About Fall Peak Service Plans

Dear Mr. Voigt:

The purpose of this letter is to correct the inaccuracies contained in your correspondence of August 12, 2005, to Roger Nober, Chairman of the Surface Transportation Board. Although BNSF does not have a contractual relationship with AECC, BNSF has been moving a small percentage of the total amount of coal destined to the White Bluff station over the last four years under an agreement with Entergy that ends in 2006. While this may be the third time in the last twelve years that AECC has had to place burn restrictions on your coal-fired power plants, it is worth noting that the western railroads have provided reliable and economic service from the PRB to White Bluff and Independence power plants for over 30 years. BNSF will continue to abide by its contractual obligations with Entergy until the end of the contract term.

In your letter, you assert that the current problems being addressed by BNSF in the PRB occurred because of deferred maintenance on the Joint Line. That assertion is simply untrue. There has been no deferred maintenance on the Joint Line and track quality has been higher than ever. Using minutes of slow orders on the Joint Line as a measure of track condition, the average daily minutes of slow orders in 2004 was 36% less than 2003. During the First Quarter of 2005, we made additional improvements in track quality to where the slow order minutes were 43% lower than the First Quarter of 2004 for the 253 miles of trackage on the Joint Line. BNSF and UP have substantially increased capital expenditures to maintain the track averaging \$11 Million per year in 2003, increasing to an average \$19 Million per year in 2004 and 2005.

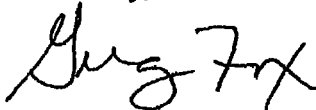
The current problems on the Joint Line did, contrary to your assertions, result from an abnormally large amount of precipitation in a very short period of time during mid-April to mid-May of 2005. The April/May precipitation in Gillette, WY, was 4.79 inches (versus 1.52 inches in 2004) and in Douglas, WY, was 3.67 inches (versus 1.32 inches in 2004) resulting in

shortened drying cycles at a critical point when the frost was leaving the ground. These events caused the soft track conditions which led to two derailments. The situation was also exacerbated by the accumulation of coal dust in the track structure. BNSF and UP are addressing this issue now with a maintenance plan to eliminate the coal dust contaminating the track. By year end we will have undercut approximately 71 miles of track and another 90 miles planned for 2006 to eliminate the contaminated ballast. BNSF and UP are also addressing the issue of preventing future accumulations of coal dust by working with members of the National Coal Transportation Association to find ways to reduce coal loss from freight cars.

Another inaccuracy in your letter is assertion that western railroads have failed to invest in capacity to haul PRB coal. Contrary to your contention, PRB production has grown by 220 million tons in the last 15 years and BNSF and UP have invested substantial sums in adding capacity in the PRB. BNSF and UP have spent over \$200 Million in capital to expand the Joint Line since 1994. In 2005, an additional 15 miles of triple track costing \$36 Million was completed and grading for an additional 18 miles for triple track capacity in 2006 at a cost of \$50 Million will be completed. In the last 12 years, BNSF has invested \$2.7 Billion dollars in capacity expansion for locomotives, cars, track and terminals. BNSF will continue to invest in PRB coal capacity provided there are adequate returns.

BNSF, like you, is anxious to make sure that the Joint Line continues to be able to move very large amounts of PRB coal in an efficient and timely manner.

Sincerely,

A handwritten signature in black ink, appearing to read "Greg Fox", written in a cursive style.

Gregory Fox

cc: Roger P. Nober - STB

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**REPLY VERIFIED STATEMENT OF
DOUGLAS G. DE BERG**

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**REPLY
VERIFIED STATEMENT
OF
DOUGLAS G. De BERG**

My name is Douglas G. De Berg. I am an independent railroad transportation systems consultant specializing in track construction and track maintenance issues with over 40 years of experience in these disciplines. A summary of my experience is provided in my verified statement submitted as part of Arkansas Electric Cooperative Corporation's Opening Evidence and Argument.

On behalf of Arkansas Electric Cooperative Corporation (AECC), I have been asked to comment on several assertions contained in the opening evidence submitted by BNSF Railway (BNSF) and Union Pacific Railroad (UP).

Background For All Issues Discussed: The Importance of Ballast

Ballast in the track structure plays an important role in the operation and maintenance of an efficient railroad. All items in the track structure from the sub-grade through to the top of rail have important roles to play for a track structure to be able to perform at the level that it's been designed to perform. How each component of the track structure is designed is the key for a successful track structure.

From my evaluation of the issue of failures of the track structure to perform in an acceptable manner at various locations on the Joint Line (BNSF/UP) in the Powder River Basin I have come to the conclusion that several critical components of the designed track structure are failing prematurely because of inadequate design. The Joint Line is carrying the most tonnage on an annual basis of any rail line in North America and is doing so by carrying these tonnages in rail vehicles that are maxed out to allowable axle loadings. BNSF witness Bobb testifies that in 2008, the Joint Line carried 375 million tons, and has a maximum capacity of 400 million

tons; it has the capacity to handle 60 loaded trains per day, and an equal number of empties.

When the line opened as a joint facility in 1984, it carried 76 million tons. Verified Statement of Stevan B. Bobb, at p. 3. We in the rail industry have not been able to keep abreast of designing the track structure to continually support the tonnages being hauled without heavy and repeated maintenance practices and cycles for these practices. In many instances one or more items that compose the track structure have failed because we have under designed the component or are using components that cannot perform because the design for using these components is flawed.

Ballast degrades by the repeated passage of heavy rail vehicles, and as tonnage accumulates the ballast degrades at ever increasing rates. Ballast degradation occurs in the following ways:

- Insufficient depth of the ballast section. If the ballast section is too shallow in depth the available ballast is called upon to support repeated loading cycles without a sufficient cushioning. A ballast section of greater depth creates more of a cushion so individual items of the ballast structure abrade against each other with less impact as the load moves downward in the ballast structure. A well designed ballast structure for the loads being handled will perform for only so many repeating cycles before the ballast structure begins to fail. The hardness of the ballast and the allowable sizes of the various grains of the ballast have as much an influence on the performance of the ballast section as the depth.
- Accumulation of fines within the ballast section. The accumulation of undesirable fines can lessen the performance of the ballast section. The accumulation of fines can come from many sources. The abrasion of individual grains of the ballast due to repeated loading cycles on the ballast section creates fines and dust that trap and hold moisture. The migration of foreign materials such as airborne dust and dirt accumulate in the ballast section. The dropping of sand used in assisting locomotive traction will foul ballast. Dirt and other debris falling off of rail cars and locomotives will foul ballast sections. The abrading of the ballast with the undersides and sides of the concrete ties creates fines and dust that collect in the ballast section. Coal and coal dust can also be deposited and accumulate in the ballast section. If the ballast is not properly maintained, the accumulation of all of these fines will eventually result in the failure of the ballast section.

1. **Increased Traffic Volumes Require That Ballast Maintenance Be Performed More Frequently; It Is Incorrect To Blame Coal Dust For This Fact.**

Having laid the groundwork for ways a ballast section can fail due to poor design and accumulated fines I will now respond to comments by BNSF and UP that blame the need for increased frequency of ballast maintenance on coal dust blown off rail cars and deposited on the track. For example, BNSF witness VanHook claims that coal dust is responsible for increasing the frequency of undercutting from every ten years on “high volume lines” to “as often as every two or three years.” Verified Statement of William VanHook, at p. 14. BNSF witness Sloggett says that on a high-density BNSF line in the Southwest, undercutting was required only every 15-20 years, whereas “certain segments of the Joint Line must be undercut every 2 to 3 years as a direct result of coal dust accumulation in the ballast.” Verified Statement of Craig Sloggett, at p. 7. UP witness Connell makes similar complaints. Verified Statement of David Connell, at p. 17. I find these statements on ballast performance to be misleading.

The contention that, without coal dust, ballast maintenance cycles that involve cleaning could approach 20 years is unrealistic. Coal dust is only one factor in the equation of why ballast degrades as explained above, and these witnesses fail to acknowledge the presence of other factors having an effect on ballast performance.

Ballast maintenance practices such as cleaning cannot overlook the fact that many items of ballast degradation contribute to more frequent cycles of maintenance and cleaning. I believe that the Joint Line sub-ballast is constructed of undesirable materials and that the sub-grade accumulates moisture, is not thick enough to support a sufficient ballast section, and the ballast section itself is under designed. Neither railroad has addressed the fact that 350 MGT accumulate on these tracks annually, and that 286,000-lb. cars are used in the transporting of coal. As a result of these factors, the normal ballast maintenance cycles are shortened

considerably. These maintenance cycles then change year by year as tonnage increases, and length of time between ballast maintenance activities does change from what is thought to be normal. I draw a conclusion that the track system was poorly designed, the tonnage grew at a rate unprecedented, and neither company had sufficient experience in maintaining the track with the volumes of tonnage being accumulated.

I feel that the BNSF reacted very slowly in addressing the ballast issues and only through prodding by UP scheduled the maintenance that they did.

The two railroads have varying different stances on ballast maintenance and while the BNSF has a smaller portion of the coal traffic than does UP, BNSF personnel are vying for Joint Line maintenance dollars against the balance of the BNSF rail system that has other corridors just as demanding of maintenance dollars. In my opinion they woefully underestimated the growth of the coal traffic, woefully under-designed the entire track structure, and didn't support the maintenance activities needed to keep this heavy haul line fully functional, resulting in massive track structure failures in 2005. In short they got caught by being short sighted in both the design and the maintenance requirements of this heavy haul line. One cannot view maintenance cycles in isolation when there are so many variables and quickly accumulating tonnages.

2. It Is Unreasonable To Complain That Maintenance Requirements Reduce The Capacity Of A Rail Line; A Rail Line Must Be Designed To Provide For Maintenance Activities.

BNSF complains that taking tracks out of service for performing cycle maintenance on the Joint Line, as well as imposing slow orders until deficient track can be repaired, reduces the capacity of that line. See Verified Statement of Craig Sloggett, at p. 3. UP witness Connell claims that his railroad cannot "sustain" the necessary amount of undercutting "perpetually". See

Verified Statement of David Connell, at p. 17. In fact, the maintenance requirements that these railroads complain about appear to me to reflect a good assessment of the work needed to maintain the lines consistent with the volumes of tonnage they expect to move. It is not acceptable to complain that necessary levels of maintenance cannot be "sustained". The traffic is there and growing, and the railroads must find the means of accomplishing the maintenance work that needs to be done to handle that traffic. When a track system is designed many factors must be taken into consideration, but most importantly the need for appropriate allowances for maintenance activities must be considered. You just have to allow for that in the design of the track structure. If you cannot move the required amounts of tonnage with maintenance cycles corresponding to the needs, then you have to design in additional tracks to disperse the tonnage or additional tracks to perform maintenance activities while minimizing delays and maximizing throughput while these activities are being performed.

3. Difficulty In Observing Coal Dust Fouling Should Not Prevent Effective Maintenance From Being Performed.

BNSF and UP claim that coal dust is a problem because the coal dust may be fouling ballast in places where there is no visible accumulation of coal on the surface. See, for example, Verified Statement of Craig Sloggett, at p. 4; Verified Statement of David Connell, at p. 14. I disagree. While fouling by coal dust or other contaminates may not be apparent from just looking at the track, a good trackman with sufficient experience in maintaining tracks in various environments or corridors can discern what is affecting the quality of the track structure. A good railroad man will investigate the causes of track degradation and will make plans appropriate to correct the results of the degradation. The modern railroad man has in addition to his acquired skills the results of continual testing of the track components by mechanical and electrical test

procedures; he takes the results from this continual testing to supplement his own investigative skills to assess each situational problem identified as needing attention.

Further, the statements of these witnesses do not take into account the fact that ballast contaminates other than coal dust play an important role in the degradation of the ballast section and the ability of the ballast section to support loads safely. Other ballast contaminates are present and need to be accounted for and addressed. There is no real direct correlation between visible piles of fouling type materials such as coal as being contributors of what contaminates may lie under the track in the ballast section, the sub-ballast section, or the sub-grade.

4. Fouled Ballast Can Be Adequately Cleaned If Proper Methods Are Followed.

UP witness Connell claims that cleaning may not remove all coal dust contamination, and that even a small amount of coal dust fouling can compromise the track structure. See Verified Statement of David Connell, at p. 14. If the ballast cleaning activity does not remove the desired amount of ballast contaminates, including coal dust, then either the cleaning screens are not appropriate for that location or the undercutting operation is not cutting down through the level of ballast needed to sustain adequate cleansing of the contaminates from the track structure. In reality there is a balance in the ballast cleaning activity wherein ballast always contains some contaminates, but the primary objective is to make sure ballast is purged of fouling materials before the functionality is compromised.

Problems can be created where the railroad underestimates production rates appropriate for the conditions or underestimates the amount of new ballast needed to bring the track to design standards. Another factor could be underestimating the amount of surfacing needed to reestablish the track at its designed height above the sub-roadbed thereby providing sufficient depth of ballast for the loads the ballast section is being asked to carry. I have experienced many

undertrack cleaning operations that have been woefully underestimated resulting in an incomplete job in doing the task assigned. When that happens (and it does a lot), the integrity of the activity is questioned and the costs for doing the job right are not estimated correctly. Because most if not all maintenance activities are very costly in terms of production costs and affecting throughput, the railroad should strive to perform and budget maintenance activities so as to be most effective in correcting deficiencies.

5. Coal Dust Is Only One Of The Ballast-Fouling Contaminates That Railroads Need To Deal With.

The railroads rely heavily on the proposition that coal dust is by a wide margin the worst fouling agent or contaminate in the ballast section. See, for example, Verified Statement of Erol Tutumluer, at p. 11. Witness Tutumluer offers tests he conducted to support that claim. This claim concerning the effects of coal dust versus other contaminants is overstated. Every contaminate that can be identified has some basis of comparison to other contaminants in each location where ballast degradation has been identified as being a track structure strength problem. There have been many cases where the poor design of the BNSF concrete ties has led to ballast degradation on the Joint Line including complete failure of the track structure due to ballast degradation along with failed concrete tie fines creating mud holes.

Witness Tutumluer's statement rests on comparisons in which coal dust fills a larger percentage of voids within the ballast section than do substances to which he compared coal dust. I don't agree with that comparison. In this part of the country, sources of fines in track include dirt fines blown into the track structure by winds, fines generated by abrading of ballast particles, fines from concrete tie abrading, etc. Such fines may be of similar composition to coal dust. Each combined with moisture is a potential major problem. In concluding that coal dust is the

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worst fouling agent witness Tutumluer ignores other contaminates and overstates the role coal dust may play in ballast section failure.

In my opinion the information sponsored by the railroads and presented in the STB proceedings suggesting that coal dust is the major source of ballast contamination is misleading and ignores the traditional other contaminates that are always present and, due to the heavy haul nature of the Joint Line, play a major role in ballast degradation. Any contaminate of the ballast section in sufficient quantities mixed with moisture will cause ballast section failure. An item I've noticed over the years of maintaining track is that the coal cars from mines that flood load cars always have amounts of coal and coal dust hanging from many parts of the cars from either overloading or misplacement of the load in the car. While railroads have been hauling coal for many years almost from the mid 1800's the issue of coal dust being the major contributor of contaminates in a ballast section has never been the only issue for ballast degradation and subsequent ballast section failure.

While on my recent field inspection of several locations of the Joint Line including the two derailment locations I did not note coal dust as being more of a problem than say any other contaminate I've mentioned above. Yes, passing loaded coal trains if going fast enough generate a trail of fine dust particles that diminishes as the train progresses in distance from the mines. Depending on wind and other weather condition other contaminates drift over the track structure and deposit contaminates in the form of super fines into and on the track structure. Parallel dirt and gravel roads generate dust fines that migrate to the ballast section along with the private parallel Right Of Way maintenance road that BNSF has created to facilitate the maintenance forces working on the railroad. In essence dirt and fines are everywhere and they do migrate to the ballast section. Over the years the construction activities in building additional parallel main

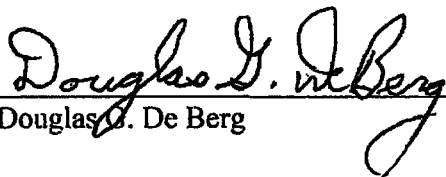
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tracks most likely contributed to a large amount of dirt and dust fines settling in on the ballast sections. All items associated with migrating contaminants cannot be discounted in the total scheme of the ballast sections accumulating contaminants.

Focusing too much attention on coal dust, and paying inadequate attention to other sources of ballast fouling, will lead to poor maintenance practices.

VERIFICATION

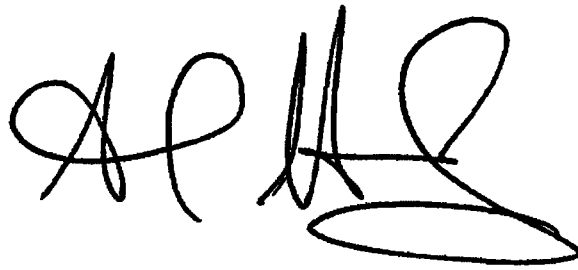
I, Douglas G. De Berg, declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this verified statement.


Douglas G. De Berg

Executed on April 28, 2010

CERTIFICATE OF SERVICE

I hereby certify that on this 30th day of April, 2010, I caused a copy of the foregoing to be served via electronic service, on all parties of record on the service list in this action.

A handwritten signature in black ink, consisting of stylized, overlapping loops and strokes, positioned above a horizontal line.

Alex Menendez